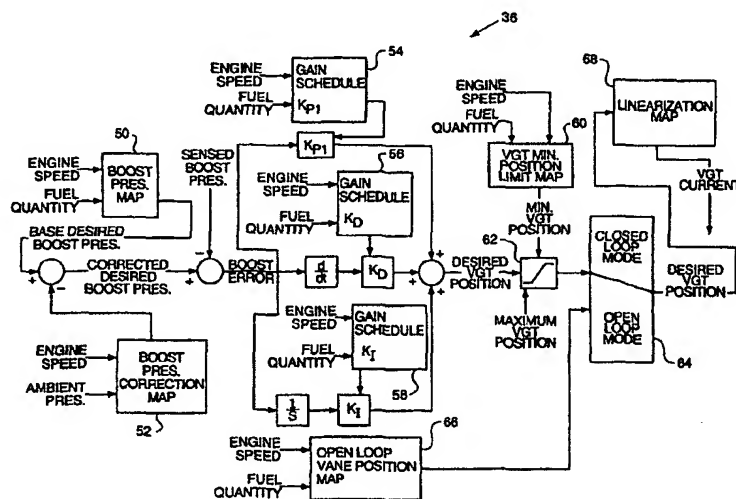




## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 7 : <b>F02D 33/02, F02B 37/24</b>	<b>A1</b>	(11) International Publication Number: <b>WO 00/20746</b> (43) International Publication Date: 13 April 2000 (13.04.00)
(21) International Application Number: PCT/US99/21750 (22) International Filing Date: 22 September 1999 (22.09.99) (30) Priority Data: 09/165,756                      2 October 1998 (02.10.98)                      US (71) Applicant: CATERPILLAR INC. [US/US]; 100 N.E. Adams Street, Peoria, IL 61629-6490 (US). (72) Inventors: BARNES, Travis, E.; 7610 Covered Bridge Road, Wendell, NC 27591 (US). COLEMAN, Gerald, N.; 2823 W. Fountaindale Drive, Peoria, IL 61614 (US). LUKICH, Michael, S.; 20806 N. Sequoia, Chillicothe, IL 61523 (US). NICHOLSON, Scott, E.; 212 Anker Lane, Metamora, IL 61548 (US). YOUNG, Paul, M.; Apt. D4, 108 Rubin Court, Cary, NC 27511 (US). (74) Agents: GREEN, Clifton, G. et al.; 100 N. E. Adams Street, Peoria, IL 61629-6490 (US).		(81) Designated States: JP, European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).  <b>Published</b> <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i>

(54) Title: DEVICE FOR CONTROLLING A VARIABLE GEOMETRY TURBOCHARGER



## (57) Abstract

The present invention is an apparatus for controlling a variable geometry turbocharger (VGT) (10) in closed loop and open loop modes, and a switching mechanism (64) for determining whether open loop or closed loop control laws should be used. In the closed loop mode, a correction factor, obtained from a pressure correction map (52) based on engine speed and atmospheric pressure, is subtracted from the desired boost pressure to prevent overspeed of the engine at lower atmospheric pressures. The actual boost pressure is then compared to the desired boost pressure after correction to obtain a boost pressure error signal. The boost pressure error signal is used as an input to a proportional integral differential control law that responsively produces a desired VGT vane position.